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It will be noted that the separation of the gas bubbles 46 from the liquid occurs in the top cover area or cover portion 15 of the reactors 40. The gas from headers 42, 44 may be recycled and forced back, together with fresh gas, into the reactors through the gas supply system. The gas/liquid separation from the product liquid is easily accomplished at the bottom of the reactor, where no gas bubbles are present, and no additional moving parts are required. If more flow is desired through the monoliths, a blade agitator may be added in a manner similar to the embodiments of Figs. 1 and 2.

IN THE CLAIMS

Cancel non-elected claims 1-21 and 27-28, and add the following new claims:

29. A method of producing a product from a reactant within a recirculating tank reactor which comprises,

feeding a reactant provided in a liquid medium into a tank reactor;

fixedly positioning a monolithic honeycomb substrate within said tank, the substrate comprising vertically-oriented honeycomb channels having catalytic surfaces and the substrate being disposed so as to leave room therein for at least one adjacent bypass passageway;

internally activating a flow of said reactant within said tank to recirculate the reactant through said honeycomb channels and said adjacent bypass passageway, said flow being activated by a combination of mechanical stirring agitation and gas bubble agitation to generate a flow of liquid medium and gas bubbles through the honeycomb channels;

controlling the ratio of gas flow to liquid flow through the honeycomb channels by independently controlling the mechanical stirring agitation and gas bubble agitation; and

removing a product from said tank reactor.

30. A method in accordance with claim 29 wherein the gas bubble agitation is provided by a gas feed header and wherein the gas bubbles contain a gas reactant.--

Amend claims 22 -26 as follows:

-- 22. A method of producing a product from a reactant within a recirculating tank reactor which comprises,

feeding a reactant into a tank reactor,

fixedly positioning a monolithic honeycomb substrate having catalytic surfaces within said tank reactor so as to leave room therein for at least one adjacent bypass passageway,

initiating internal agitation within the tank reactor to initiate a flow of said reactant within said tank reactor,

recirculating such flow of reactant through said fixedly positioned catalyzed honeycomb substrate and through said adjacent bypass passageway, and removing a product from said tank reactor.

23. A method in accordance with claim 22 wherein mechanical internal agitation is used to recirculate the flow of reactant within the bypass passageway.

24. A method in accordance with claim 22 wherein the reactant is provided in a liquid medium, and wherein the step of recirculating the flow of reactant comprises forcing gas into the liquid medium and forming upwardly flowing bubbles in the liquid medium.

25. A method in accordance with claim 22 wherein the step of fixedly positioning the monolithic honeycomb substrate within the tank reactor comprises fixedly positioning the honeycomb substrate adjacent inner sidewall portions of the tank reactor.

26. A method in accordance with claim 22 wherein the step of fixedly positioning the monolithic honeycomb substrate within the tank reactor comprises fixedly positioning the honeycomb substrate centrally within the tank reactor. --
